REMARKS

Claims 1-22 and 42-63 are pending, with 1, 2, 21, 22, 44, 48, 51, 55, 58 and 61 being the independent claims. The Examiner has required restriction under 35 U.S.C. §121. (4/11/04 Office Action, §5, hereinafter "Office Action")

The Examiner has further indicated that claims 1, 2, 21, 22, 44, 45, 48, 49, 51, 52, 55, 56, 58, 59, 61 and 62 are subject to a restriction to one of the encompassed patentably distinct species of invention. The Applicant has made a provisional election, with traverse, to prosecute claims 1-22 and 42, insofar as the claims are drawn to the species comprising SEQ ID NOS: 45, 155, 63, 157, 22 and 77. Therefore, claims 1, 2, 17, 21, 22, 42 and 43, insofar as they are drawn to the elected invention, are currently under prosecution.

Claims 4-16, 18, 19 and 44-63 have been withdrawn from further consideration by the Examiner under 37 CFR §1.142(b) as being drawn to a non-elected invention or species of invention. (Office Action, §3) The Applicant believes that, for the same reason, the Examiner intended to withdraw claim 20, which is drawn to an antibody comprising SEQ ID NOS: 46, 28, 63, 20, 22 and 77. Therefore, the Applicant respectfully asserts that claim 20 was inadvertently omitted from the Examiner's list of withdrawn claims and has designated claim 20 as "withdrawn" in the listing of the claims. The Examiner has rejoined claim 43, to the extent that it is drawn to the elected species of invention, to the group of provisionally elected claims under examination.

The Examiner has rejected claims 1, 2, 17, 21, 22, 42 and 43.

The Examiner has objected to the specification for improper incorporation by reference, improperly demarcated trademarks, and informalities. The Applicant has amended the specification to address these objections. The Examiner has objected to claims 17 and 42 and has suggested amendments that would result in more proper recitation of the subject matter. The Applicant has amended these claims in accordance with the Examiner's suggestions, and believes that the objections to the specifications and claims have been overcome. Additional minor changes are made to the specification. No new matter has been introduced.

Elections/Restrictions

As described in §§ 1 and 5 of the current Office Action and §2 of the 10/21/03 Office Action, the Examiner required Restriction to one of the named Groups because, according to the Examiner, the inventions of the groups are distinct. The Examiner has also required election of a single species of invention. (Office Action, §5) As the Examiner indicated in the Office Action, in a phone conference held on April 19, 2004, the Applicant made, with traverse, a provisional election to prosecute the invention of claims 1-22 and 42, insofar as the claims are drawn to the species of antibody comprising SEQ ID NOs: 45, 155, 63, 157, 22 and 77. (Office Action §6 and 4/19/04 Examiner Interview) The Examiner has requested that the Applicant affirm the provisional election. (Office Action, §6) The Applicant hereby affirms the provisional election, with traverse, of the species of antibody comprising SEQ ID NOs: 45, 155, 63, 157, 22 and 77.

The Examiner has rejoined claim 43 with the elected group, to the extent that the claim is drawn to the elected species of invention, therefore claim 43 will be considered together with claims 1, 2, 17, 21, 22, 42 and 43. (Office Action, §8) The Applicant wishes to thank the Examiner for rejoining claim 43.

The Applicant respectfully asserts that with regard to the restriction made between product and process claims, withdrawn process claims should be rejoined in accordance with the provisions of MPEP §821.04. According to MPEP §821.04, "[p]rocess claims that depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier." MPEP §821.04 also reads, in part, "[w]here the application as originally filed discloses the product and the process for making and/or using the product, and only claims directed to the product are presented for examination, when a product claim is found allowable, applicant may present claims directed to the process of making and/or using the patentable product by way of amendment pursuant to 37 CFR 1.121." The Applicant therefore reserves the opportunity to amend the withdrawn claims or add new process claims having all the limitations of the allowable product claim as appropriate, when the product claim is found allowable.

Information Disclosure Statement

The Applicant wishes to thank the Examiner for his consideration of the information disclosures. (Office Action, §9)

Sequence Rules Compliance

The Examiner has pointed out that sequences in Figure 5A are not identified by sequence identification numbers (Office Action, §10), and that to comply with the requirements of the sequence rules (37 C.F.R. §§1.821 and 1.825) the Applicant must submit substitute copies of the sequence listing and a statement that both copies are the same and include no new matter. Applicant thanks the Examiner for the opportunity to correct, and submits substitute copies of the sequence listing with this response. The Applicant has also amended the specification to reference the SEQ ID NOS of the sequences disclosed in Figure 5A.

A revised sequence listing has been prepared, with SEQ ID NOS:359-380 assigned to the sequences of Figure 5A, which were inadvertently not assigned SEQ ID NOS at the time the application was filed. The revised Sequence Listing also corrects the inadvertent truncation of the HUI77 antibody variants VL CDR1 (SEQ ID NOS:149-153), in which a Glu was omitted from the C-terminus of the CDR in the originally filed Sequence Listing.

On page 87, the paragraphs on lines 16-31 refer to Figures 4B and 5B as showing beneficial CDR mutations, whereas these paragraphs should reference Figures 4C or 5C (lines 16, 18 and 26). This amendment is supported by Figures 4C and 5C.

Specification

The Examiner has objected to the specification because of the recitation "(see Xu et al., Hybridoma 19:375-385 (2000); Xu et al., J. Cell Biol. 154:1069-1079 (2001) [...] each of which is incorporated herein by reference" found on page 19 at lines 11-14. (Office Action, §11) This statement also occurs on page 18 at lines 3-9. According to the Examiner (Office Action, §11), "[a]mending the specification to remove the incorporation by reference statement to the extent that it refers to the non-patent literature of Xu *et al.* can obviate this issue." Therefore, the Applicant has amended the specification to delete both occurrences of the phrase "each of which is incorporated herein by reference," and believes the issue to be obviated.

The Examiner has also objected to the specification due to the use of improperly demarcated trademarks. (Office Action, §12) The Applicant has amended the specification as suggested by the Examiner, *i.e.*, trademarks have been capitalized or demarcated with the appropriate symbol indicating their proprietary nature.

Finally, the Examiner has objected to alleged "informalities" in the specification (Office Action, §13). The Examiner writes that:

> "[a]t pages 25-27, there are numerous disclosures, which appear to be typographical errors; see e.g., "eM" at page 26, line 17. Since the disclosures appear to be indicative of an amino acid substitution at a particular position in the exemplary CDRs of a parental antibody, it is suggested "eM" should read "M", which is the single letter code for the amino acid methionine. The designations, e.g., "eM", "cV", "dH", "dN", and "eS", which are recited at pages 25-27, are unfamiliar designations for amino acid residues.

The Examiner has requested appropriate correction or explanation. The Applicant respectfully submits that the upper case letters are indeed used as the single letter codes for the amino acid residues. The lower case letters are used, in combination with position numerals, to indicate the positions of the substitutions, not to identify amino acid residues. For example, at page 25, lines 18-19, a CDR is identified as "HuIV26 V_L CDR1 27eS→Y." This name indicates that there is a change from S → Y (serine → tyrosine) at position 27e.

This nomenclature can be better understood by looking at Figure 2C, which shows the amino acid sequence of the HuIV26 kappa chain (V_K). Looking carefully, there are 15 amino acids between positions 20 and 30, rather than the expected 9. This happens because the HuIV26 kappa chain CDR is six amino acids longer than the standard numbering system allows. In order to accomodate the six extra amino acids without disturbing the numbering outside the CDR, six additional position designations, 27a, 27b, 27c, 27d, 27e and 27f, were created and inserted after position 27. These positions are indicated in Figure 2C by the six lower case letters printed above the six amino acids following the Q (lysine) at position 27.

Referring to Figure 2C, one can see that there is an S at position 27e. Thus, in the variant HuIV26 V_L CDR1 27eS→Y, the sequence starting at position 20 and ending at position 30 would be

T-M-S-C-K-S-S-Q-S-L-L-N-**Y**-G-N-Q-K

as compared to the wild type sequence

T-M-S-C-K-S-S-Q-S-L-L-N-**S**-G-N-Q-K.

Similarly, with regard to the V_H sequence in Figure 2C, there are three extra positions (82a, b and c). With all due respect, the Applicant believes that the nomenclature is descriptive of the CDR positions and asks that the Examiner withdraw his objection to the specification.

Claim Objections

The Examiner has objected to claim 17 because of certain recitations, as noted in the Office Action at § 14. Specifically, the Examiner objected to claim 17 because it recites "[t]he antibody of claim 2, wherein said antibody, or functional fragment thereof, comprises [...]." The Examiner stated that claim 2 is drawn to an antibody or a functional fragment thereof, therefore dependent claim 17 would more properly recite, "the antibody, or functional fragment thereof, of claim 2, which antibody and functional fragment comprises [...]."

Similarly, the Examiner objected to claim 42 because it recites "[t]he grafted antibody of any one of claims 1-41, wherein said functional fragment is [...]," when in fact claims 1, 2, 21 and 22 are drawn to a grafted antibody or functional fragment thereof. The Examiner suggested amending claim 42 to recite "[t]he functional fragment of any of claims 1-22, wherein the functional fragment is [...]."

Claims 17 and 42 have been amended as suggested by the Examiner. The Applicant believes that claims 17 and 42 are now in condition for allowance.

Claim Rejection under 35 U.S.C. § 112, ¶ 1

Claims 1, 2, 17, 21, 22, and 42 and 43, insofar as the claims are drawn to the antibody of any of claims 1, 2, 17, 21 and 22, were rejected under 35 U.S.C. § 112, ¶ 1, "as containing subject matter which was not described in the specification in such a way as to reasonably

convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention." (Office Action, § 17) This rejection is respectfully traversed.

The Examiner writes that "[t]he specification does not describe with any degree of particularity a single member of the genus of 'cryptic collagen epitopes' to which the members of the claimed genus of antibodies must bind, such that the specification might reasonably convey to the skilled artisan that Applicant had possession of the claimed invention at the time the application was filed." (*Id.*).

The Examiner acknowledges the disclosure at p. 16, lines 9-13, of the instant application, where "a cryptic collagen site" or "cryptic collagen epitope" is described as "an epitope of a collagen molecule that is less accessible to binding of an antibody, or functional fragment thereof, in native collagen than in denatured collagen." However, the Examiner argues that "this definition of 'a cryptic collagen epitope' does not allow one skilled in the art to immediately recognize or distinguish members of the genus of claimed antibodies capable of binding such an epitope, because one could not immediately recognize or distinguish members of the genus of cryptic collagen epitopes to which the members of the claimed genus of antibodies must bind." (*Id.*).

It is respectfully submitted that the specification does indeed teach one of skill in the art to recognize and distinguish members of the genus of claimed antibodies capable of binding a cryptic collagen epitope.

First, the specification teaches numerous antibodies having specific binding activity for a cryptic collagen epitope. Figures 6 and 7, as described in Example III at p. 88, l. 17 - p. 89, l. 4, and at p. 5, ll. 16-29, summarize experiments showing that a number of CDR variants have specific binding activity for a cryptic collagen epitope. Binding of the variants listed was compared with the binding of antibodies having the wild-type sequence, and the values expressed in relative terms. As stated at p. 89, ll. 2-4, "A number of variants were identified having increased affinity relative to wild type forms of the respective antibodies.

In Example IV, variant antibodies of the invention were described as binding to denatured collagen more specifically than to native collagen. For example, HUI77 variant Qh2b-B7 did not exhibit "specific binding activity for native collagen I," whereas it "exhibited

significantly increased binding activity relative to IX-177 [the non-variant antibody] on both denatured collagen I and IV." (Specification, p. 90, ll. 4-22) Similarly, two HUIV26 variants did not have significant binding activity for native collagen IV, but "exhibited significantly increased binding activity relative to IX-IV26 [wild-type antibody]." (Specification, p. 89, l. 11 - p. 90, l. 3) Thus, a number of antibodies that have specific binding activity for cryptic collagen epitopes are taught.

Second, the specification provides adequate written description and enabling disclosure of the claimed antibodies as it describes methods for producing the antibodies, and the specificity of the antibodies. In *Noelle v. Lederman et al.*, 355 F.3d 1343, 69 U.S.P.Q. 2d 1508 (Fed. Cir., 2004), the Federal Circuit has summarized the written description requirements with respect to antibodies as follows: "as long as an applicant has disclosed a 'fully characterized antigen,' either by its structure, formula, chemical name, or physical properties, or by depositing the protein in a public depository, the applicant can then claim an antibody by its binding affinity to that described antigen" (*Id.*, at 1349).

Applicants submit that the specification fully satisfies the requirement for enablement under 35 U.S.C. § 112, first paragraph. "The law does not require a specification to be a blueprint in order to satisfy the enablement requirement," *Staehelin v. Secher*, 24 U.S.P.Q. 2d 11513, 1516 (Bd. Pat. App. & Int. 1992). A specification need not describe—and best omits—that which is well known in the art. See, *e.g.*, *In re Buchner*, 929 F.2d 660, 661, 18 U.S.P.Q.2d 1331, 1332 (Fed. Cir. 1991). It is also well-settled in the law that "a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed." *Ex parte Jackson*, 217 U.S.P.Q. 804, 807 (Bd. App. 1982).

Even in the relatively "unpredictable" arts, one need not necessarily disclose how to make each and every embodiment encompassed by the claim. For example, in *In re Angstadt*, 537 F.2d 498, 190 U.S.P.Q. 214 (C.C.P.A. 1976), the court noted that some experimentation is often to be expected in unpredictable areas of technologies. The court further observed that if § 112 required a disclosure of a test with every species covered by a claim in an unpredictable art, then a prohibited number of actual experiments would have to be performed, discouraging the filing of patent applications in unpredictable areas. (*Id.*)

The specification describes in detail how to generate the epitope to which antibodies of the invention bind, teaching that a denaturation of collagens exposes cryptic epitopes. (Specification, p. 16, ll. 9-13) Methods for denaturing collagen are disclosed at p. 17, ll. 9-31 and at p. 23, ll. 5-24, explaining therein that one skilled in the art will know a variety of methods suitable for denaturing a collagen molecule to reveal a cryptic collagen site or epitope.

The specification further describes how to screen for antibodies that have specific binding activity for the cryptic collagen epitope. An antibody of the present invention, "having specific binding activity for a cryptic collagen epitope, preferentially recognizes denatured over native collagen, that is, has a higher binding affinity for denatured over native collagen." (Specification, p. 16, ll. 13-17) The specification teaches that "such an antibody can have at least about a 2-fold or greater preference for denatured collagen over native collagen, and can exhibit about a 3-fold or greater preference, about a 5-fold or greater preference, about a 10-fold or greater preference, about a 15-fold or greater preference, about a 20-fold or greater preference, about a 25-fold or greater preference, about a 50-fold or greater preference, about a 100-fold or greater preference, or even a higher preference for denatured over native collagen." (Specification, p. 16, ll. 17-28)

According to the specification, specific binding activity could be "readily determined by one skilled in the art, for example, by comparing the binding activity of an antibody to a particular polypeptide versus a control polypeptide that is not the particular polypeptide." (Specification, p. 12, ll. 20-25) Furthermore, the specification discloses methods for screening at p. 13, l. 18 – p. 14, l. 2.

The described specific binding activity for a cryptic collagen epitope is a sufficient selective criteria that can be used to identify and isolate any antibody claimed in the present invention. Thus, the present invention teaches a general method for identification of antibodies based on their specificity for cryptic collagen epitopes.

The Applicant respectfully submits that in view of the above arguments, the specification does describe the subject matter of claims 1, 2, 17, 21, 22, 42 and 43 so as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, and that these claims are now in condition for allowance.

Claim Rejection under 35 U.S.C. § 112, ¶ 1 – Enablement

The Examiner has also rejected claims 1, 2, 21, 22, and claims 42 and 43, insofar as the claims are drawn to the antibody of any of claims 1, 2, 21 and 22, under 35 U.S.C. § 112, ¶ 1, as lacking enablement. (Office Action, § 18) Applicants respectfully traverse this rejection.

In his rejection, the Examiner stated that "[t]he claims encompass a grafted antibody that comprises fewer than three light chain CDRs and/or fewer than three heavy chain CDRs." He further argued that the specification "does not reasonably provide enablement for making a grafted antibody, or a functional fragment thereof, which antibody or functional fragment binds specifically to a cryptic collagen epitope, wherein said antibody or functional fragment comprises only one or two heavy chain CDRs or wherein said antibody or functional fragment comprises only one or two light chain CDRs."

The Examiner appears to believe that the claims, which are drawn to a grafted antibody comprising one or more CDRs selected from the recited sequences, as they are written specify the total number of CDRs present in the antibody. The Applicant respectfully asserts that the claims specify only the number of recited CDRs present in the antibody and that the total number of CDRs present is specified by that which is known to those of skill the art. For example, as discussed by the Examiner in reference to Mariuzza *et al.*, "[t]he antigen-combining site of an antibody is a three-dimensional structure, which fully comprises six 'complementarity-determining regions' (CDRs), three each from the light and heavy chains." (Office Action, § 18) It would thus be understood by one of skill in the art that an antibody, by definition, comprises at least six CDRs.

As previously stated, a specification need not describe—and best omits—that which is well-known in the art. See, *e.g., In re Buchner*, 929 F.2d 660, 661, 18 U.S.P.Q.2d 1331, 1332 (Fed. Cir. 1991). Certainly, it follows that the claims need not recite what is well known in the art. The claims need not recite all elements of the antibody, particularly if those elements are understood by those of skill in the art to be components or structures common to all antibodies.

That the antibodies of the present claims would contain at least six CDRs is made evident by the teaching of how to assemble an antibody having six CDRs but having substitutions in only one CDR. (Specification, Example II, pp. 85-88) The heavy and light chain genes used as

starting material already encode three CDRs each. The desired CDR DNA sequence replaces the existing CDR sequence. Absent any replacement, the original six CDRs would remain.

The Examiner argues that "[t]he claims encompass a grafted antibody that comprises fewer than three light chain CDRs and/or fewer than three heavy chain CDRs," and that "while the artisan would not expect such an antibody to bind specifically to an antigen, the specification fails to teach one to make such an antibody, which retains specific binding affinity for a cryptic collagen epitope." These arguments are moot, in view of the fact that an antibody of the claims would be understood by one of skill in the art to comprise at least six CDRs.

The Examiner has acknowledged that the specification is "enabling for making a grafted antibody, or a functional fragment thereof, antibody or functional fragment binds specifically to collagen, wherein said antibody or functional fragment comprises the three heavy chain CDRs of SEQ ID NO:45, SEQ ID NO:155, and SEQ ID NO:63 and wherein said antibody or functional fragment comprises the three light chain CDRs of SEQ ID NO:157, SEQ ID NO: 22, and SEQ ID NO:77..." (Office Action, § 18) The Applicant respectfully submits that insofar as the specification teaches how to make a grafted antibody comprising three recited light chain CDRs and three recited heavy chain CDRs having specific binding affinity for a cryptic collagen epitope, it teaches how to make an antibody having one or more of the recited CDRs of the instant claims that would retain specific binding affinity for a cryptic collagen epitope.

The Applicant has amended claims 1, 21 and 22 to recite the subject matter more clearly. These amendments do not change the scope of the claims. The Applicant believes that for the reasons set forth above, the rejections of claims 1, 21 and 22 have been traversed and are now in condition for allowance. Claims 2, 42 and 43 depend from claims 1, 21 and 22 and therefore are also believed to be in condition for allowance. The Applicant believes that for the reasons set forth above, the rejections, of claims 1, 2, 21, 22, 42 and 43 under 35 U.S.C. § 112, ¶ 1, as lacking enablement, have been traversed and that these claims are now in condition for allowance.

Claim Rejections—35 U.S.C. § 112, ¶ 2

Claims 1, 21, 22, 42 and 43 were rejected under 35 U.S.C. § 112, ¶ 2. The Examiner has stated that these claims are indefinite because claim 1 recites, "comprising one or more

complementarity determining regions (CDRs) having at least one amino acid substitution in one or more CDRs of a heavy chain CDR [...] or a light chain CDR." (Office Action, §20)

The Applicant has amended claims 1, 21 and 22 to more clearly recite the subject matter of the invention. Claims 42 and 43 depend from claim 1, 21 or 22, therefore the amendments to these claims are believed to have put claims 42 and 43 in condition for allowance. These amendments do not change the scope of the claims. The Applicant believes the rejections to claims 1, 21, 22, 42 and 43 to have been traversed above, and that these claims are now in condition for allowance.

The Examiner has also stated that claims 42 and 43 are indefinite because the claims depend from claims including canceled claims 23-41. (Office Action, §21) The Applicant has amended claims 42 and 43 to depend from claims 1-22, and therefore believes these claims to be in condition for allowance.

For the reasons set forth above, the Applicant believes that the rejections of claims 1, 21, 22, 42 and 43 under 35 U.S.C. § 112, ¶ 2 have been overcome, and respectfully requests allowance of these claims.

Claim Rejections—Obviousness-Type Double Patenting

Claims 1, 2, 17, 21 and 22, and claims 42 and 43, insofar as the claims are drawn to the antibody of any of claims 1, 2, 17, 21 and 22, were provisionally rejected under the judicially created doctrine of obviousness-type double patenting. According to the Examiner, the claims are unpatentable over claims 1-4, 6, 10, 14, 16 and 17 of copending Application No. 09/478,977 ("the '977 Application"). (Office Action, §23) The Applicant respectfully traverses this rejection.

As an initial matter, no claims have been allowed in copending Application No. 09/478,977; therefore, as the Examiner notes, the rejection is merely provisional until claims issue in one of the applications.

The Examiner has acknowledged that the conflicting claims are not identical. He argued that, nonetheless, they are not patentably distinct from each other. He stated that "since the claims of the instant application are drawn to a species of antibody, which is encompassed by the

more generic claims of the copending application, even though the conflicting claims are not identical, they are not patentably distinct from each other." (Office Action, §23)

However, the Federal Circuit clearly stated, in an opinion regarding its reversal of a double-patenting rejection by the Board, that the mere encompassing of a species claim by a genus claim is not grounds for a double-patenting rejection:

> We reverse the board's double patenting rejection essentially for two reasons: (1) It has confused double patenting with "domination" which, by itself, does not give rise to "double patenting" and (2) it has used the disclosure of appellants' joint invention in the Kaplan patent specification as though it were prior art, which it is not, to support the obviousness aspect of the rejection.
>
> [1] By domination we refer, in accordance with established patent law terminology, to that phenomenon, which grows out of the fact that patents have claims, whereunder one patent has a broad or "generic" claim which "reads on" an invention defined by a narrower or more specific claim in another patent, the former "dominating" the latter because the more narrowly claimed invention cannot be practiced without infringing the broader claim. To use the words of which the board seemed to be enamored, the broader claim "embraces" or "encompasses" the subject matter defined by the narrower claim. In possibly simpler terms, one patent dominates another if a claim of the first patent reads on a device built or process practiced according to the second patent disclosure. This commonplace situation is not, per se, double patenting as the board seemed to think. *In re Sarett*, 327 F.2d 1005, 1014, 1015, 140 USPQ 474, 482, (CCPA 1964). (See particularly the quotations from E. Stringham's Double Patenting (1933) about terms such as "covered" and "embraced.")

In re Kaplan, et al., 789 F.2d 1574, 1577, 229 USPQ 678 (Fed. Cir., 1986) (emphasis added). Therefore, the Applicant respectfully asserts that Examiner's statement, that the '977 Application claims encompass those of the instant application, is not sufficient basis for a double patenting rejection.

Inquiry for Determination of Obviousness-Type Double Patenting

The proper inquiry for obviousness-type double patenting is to compare the claims of the two patents to see whether they are patentably distinct. *See Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 U.S.P.Q. 337 (Fed. Cir. 1985).

The claims of the instant application are directed to sequences within the CDRs of an antibody that has specific binding activity for a cryptic collagen epitope. The claims of the '977 Application generically describe all antibodies that bind to denatured collagen, with greater affinity than to native collagen, but do not teach or disclose the particular amino acid sequences within the CDRs of the antibody that could be used to obtain the required binding activity. This gap is not filled by the knowledge of one of skill in the art. Until the invention of the present application, one of skill in the art would not have known what particular amino acid sequences the CDRs could have while maintaining the required binding specificity.

The Federal Circuit, in *In re Baird*, 16 F.3d 380, 29 U.S.P.Q.2d 1550 (Fed. Cir. 1994), found that a disclosure of a generic formula encompassing "millions of compounds" did not make obvious a claim to three:

> Given the vast number of diphenols encompassed by the generic diphenol formula in Knapp, and the fact that the diphenols that Knapp specifically discloses to be "typical," "preferred," and "optimum" are different from and more complex than bisphenol A, we conclude that Knapp does not teach or fairly suggest the selection of bisphenol A.

Id., at 383. The panel referred to their earlier finding, in *In re Jones*, 958 F.2d 347, 350, 21 USPQ2d 1941, 1943 (Fed. Cir. 1992), that a reference disclosing a "potentially infinite genus" of salts did not disclose or suggest the claimed salt:

> What a reference teaches is a question of fact. *Beattie*, 974 F.2d at 1311, 24 USPQ2d at 1041. The fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious. *In re Jones*, 958 F.2d 347, 350, 21 USPQ2d 1941, 1943 (Fed. Cir. 1992) (rejecting Commissioner's argument that "regardless [ ] how broad, a disclosure of a chemical genus renders obvious any species that happens to fall within it"). Jones involved an obviousness rejection of a claim to a specific compound, the 2-(2 '-aminoethoxy) ethanol salt of 2-

> methoxy-3,6-dichlorobenzoic acid (dicamba), as obvious in view of, inter alia, a prior art reference disclosing a genus which admittedly encompassed the claimed salt. We reversed the Board's rejection, reasoning that the prior art reference encompassed a "potentially infinite genus" of salts of dicamba and listed several such salts, but that it did not disclose or suggest the claimed salt. *Id.*

In re Baird, at 382. The Baird panel referred to the earlier finding in *In re Bell*, 991 F.2d 781, 26 U.S.P.Q. 2d 1529 (Fed. Cir. 1993) where the Court determined that claimed DNA sequences were found not to have been made obvious by the disclosure of an "infinite number" of possible sequences:

> Therefore, given the nearly infinite number of possibilities suggested by the prior art, and the failure of the cited prior art to suggest which of those possibilities is the human sequence, the claimed sequences would not have been obvious.

Id., at 784. The claims of the '977 Application do not recite particular amino acid or DNA sequences claimed in the present application, thereby potentially encompassing a vast number of antibodies having different sequences. The instant claims reciting specific sequences thus would not have been obvious to one skilled in art reading the claims of the '977 Application.

The Applicant believes that the provisional obviousness-type double patenting rejection of claims 1, 2, 17, 21 and 22 to have been traversed by the above arguments, thereby putting these claims in condition for allowance.

Conclusion

Applicants believe that for the reasons set forth above, the rejections of Claims 1, 2, 17, 21, 22, 42 and 43 have been overcome and the claims are now in condition for allowance. Amendments to the claims were made for purposes of more clearly stating the claimed subject matter and do not add new matter or alter the scope of the claims.

In light of the amendments and remarks herein, Applicants submit that the claims are now in condition for allowance and respectfully request a notice to this effect. The Examiner is invited to call the undersigned agent if there are any questions.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 502624 and please credit any excess fees to such deposit account.

Respectfully submitted,

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